What is claimed is:

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1. An optical pickup apparatus comprising:

a light source;

an objective lens for focusing light rays flux emitted from said light source on an optical recording medium;

a quarter-wave ($\lambda/4$) plate;

a light rays flux separating element for separating the reflection light rays reflected on said optical recording medium from the optical axis of the incident light rays; and

a light-receiving element for detecting the signal from said reflection light rays,

wherein an optical element made of birefringent material is employed as said light rays flux separating element, and

wherein said light rays flux separating element is disposed in the divergent optical path just after said light source.

2. An optical pickup apparatus as defined in claim 1, wherein said light source is a semiconductor laser.

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3. An optical pickup apparatus as defined in claim 1, wherein the incident plain surface of said light rays flux separating element is not perpendicular to the optical axis.

4. An optical pickup apparatus as defined in claim 1, wherein said light source and said light-receiving element are unitarily constructed by combining both of them into one.

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~~5. An optical pickup apparatus as defined in claim 1,~~

wherein a plain plate made of birefringent material is employed as said light rays flux separating element.

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6. An optical pickup apparatus as defined in claim 1, wherein said light rays flux separating element is employed as a window member of said semiconductor laser for outgoing light rays emitted therefrom.

7. An optical pickup apparatus as defined in claim 1, wherein two pieces of prism consisting of same sort of uniaxial crystal respectively having optical axes intersecting perpendicularly to each other are employed, and assuming that the refractive index for the ordinary light rays of the prism is n_o and the refractive index for the extraordinary light rays is n_e, when n_e is larger than n_o ($n_e < n_o$), the incident angle of the ordinary light rays transmitted through the first prism to the second prism is δ, and the counterclockwise angle from the optical axis of the ordinary light rays is assumed to be plus (+) direction, the value of δ becomes larger than zero ($\delta > 0$), and on the contrary, when n_e is larger than n_o ($n_e > n_o$), the incident angle of the extraordinary light rays transmitted through the first prism to the second prism is δ, and the counterclockwise angle from the optical axis of the extraordinary light rays is assumed to be plus (+) direction, the value of δ becomes smaller than zero ($\delta < 0$).

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8. An optical pickup apparatus,

wherein said optical pickup apparatus focuses the light rays flux emitted from a semiconductor laser through an objective lens onto an optical information recording medium in order to form a small spot on said recording medium and performs the operations of recording, reproducing, and erasing the optical information, said semiconductor laser and said light-receiving element are formed on a single stem, and the light rays flux is transmitted, through the laser beam in the order of a uniaxial crystal plate, a collimating lens, and a beam shaping element and guided to said objective lens.

9. An optical pickup apparatus as defined in claim 8,

wherein the heights of said semiconductor laser and said light-receiving element formed on said stem are made different from each other.

10. An optical pickup apparatus,

wherein said optical pickup apparatus focuses the light rays flux emitted from a semiconductor laser through an objective lens onto an optical information recording medium in order to form a small spot on said recording medium performs the operations of recording, reproducing, and/or erasing the optical information, said semiconductor laser and said light-receiving element are formed on a single stem, and the light rays flux is guided to said objective lens through a uniaxial crystal plate partly having a discontinuous surface.

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11. An optical pickup apparatus as defined in claim 10, wherein said light-receiving element formed on said stem consists of two pieces of two-divisional light-receiving elements respectively having dividing directions different from each other, and the height of one of said light-receiving elements is same as that of said semiconductor laser, while the height of another one of said light-receiving elements is different from that of said semiconductor laser.

12. An optical pickup apparatus as defined in either one of claims 8 and 10,

wherein a uniaxial crystal plate is hermetically sealed unitarily in a package containing said semiconductor laser and said light-receiving element therein.

13. An optical pickup apparatus, in which the outgoing light rays emitted from the semiconductor laser are focused by the objective lens and form an extremely small spot on the surface of the optical information recording medium, and in such manner, the operations of recording, reproducing, and/or erasing the information are performed, and further, the reflection light rays reflected on the afore-mentioned optical information recording medium are guided to the light-receiving element and thereby the reproduction of the information and the detection of the focus error signal and the track error signal both for use in the servo mechanism are performed,

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wherein the quarter-wave($\lambda/4$) plate and the reflection-type birefringent prism provided with the deflecting function of deflecting the reflection light rays reflected on the above optical information recording medium and the light rays flux separating function of separating the reflected light rays from the outgoing light rays are disposed in the optical path between the semiconductor laser constructing the optical pickup portion and the objective lens, and the light-receiving element for receiving the reflection light rays from the above optical information recording medium which are deflected and separated by the reflection-type birefringent prism is disposed on a single substrate together with the above-mentioned semiconductor laser.

14. An optical pickup apparatus, in which the outgoing light rays emitted from the semiconductor laser are focused by the objective lens and form an extremely small spot on the surface of the optical information recording medium, and in such manner, the operations of recording, reproducing, and/or erasing the information are performed, and further, the reflection light rays reflected on the afore-mentioned optical information recording medium are guided to the light-receiving element and thereby the reproduction of the information and the detection of the focus error signal and the track error signal both for use in the servo mechanism are performed,

wherein the 3-beam Wollaston prism provided with the light

rays flux separating function of separating the reflection light rays from the afore-mentioned optical information recording medium into three polarized components is disposed in the optical path between the semiconductor laser constructing the optical pickup portion and the objective lens, and the above light-receiving element for receiving at least two polarized components among the polarized components separated by the 3-beam Wollaston prism is disposed on a single substrate together with the above-mentioned semiconductor laser.

15. An optical pickup apparatus as defined in either one of claims 13 and 14,

wherein all of the optical parts constructing the optical pickup portion from said semiconductor laser to said objective lens are mounted unitarily.

16. An optical pickup apparatus as defined in either one of claims 13, 14 and 15,

wherein the optical parts constructing the optical pickup portion from said semiconductor laser to said objective lens are accommodated in an actuator movable portion which can be which can be moved both in the tracking direction and in the focusing direction.

17. A magneto-optic pickup apparatus comprising:

a light source;

an objective lens for focusing light rays flux emitted from said light source on an optical recording medium;

a light rays flux separating element for separating the reflection light rays reflected on said optical recording medium from the optical axis of the incident light rays;

and

a light-receiving element for detecting the signal from said reflection light rays,

wherein an optical element made of birefringent material is employed as said light rays flux separating element, and

wherein said light rays flux separating element is disposed in the divergent optical path just after said light source.

18. A magneto-optic pickup apparatus as defined in claim 17, wherein said light source is a semiconductor laser.

19. A magneto-optic pickup apparatus as defined in claim 17, wherein the incident plain surface of said light rays flux separating element is not perpendicular to the optical axis.

20. A magneto-optic pickup apparatus as defined in claim 17, wherein said light source and said light-receiving element are unitarily constructed by combining both of them into one.

21. A magneto-optic pickup apparatus as defined in claim 17, wherein a plain plate made of birefringent material is employed as said light rays flux separating element.

22. A magneto-optic pickup apparatus as defined in claim 17, wherein said light rays flux separating element is employed as a window member of said semiconductor laser for outgoing light rays emitted therefrom.

23. A magneto-optic pickup apparatus as defined in claim 17, wherein two pieces of prism consisting of same sort of uniaxial crystal respectively having optical axes intersecting perpendicularly to each other are employed, and assuming that the refractive index for the ordinary light rays of the prism is n_o and the refractive index for the extraordinary light rays n_e ,when n_e is larger than n_o ($n_o < n_e$), the incident angle of the ordinary light rays transmitted through the first prism to the second prism is δ, and the counterclockwise angle from the optical axis of the ordinary light rays is assumed to be plus (+) direction, the value of δ becomes larger than zero ($\delta > 0$), and on the contrary, when n_o is larger than n_e ($n_o > n_e$), the incident angle of the extraordinary light rays transmitted through the first prism to the second prism is δ, and the counterclockwise angle from the optical axis of the extraordinary light rays is assumed to be plus (+) direction, the value of δ becomes smaller than zero ($\delta < 0$).

24. A magneto-optic pickup apparatus, wherein said magneto-optic pickup apparatus focuses the light rays flux emitted from a semiconductor laser through an objective lens onto an optical information recording medium in order to form a small spot on said recording medium and performs the operations of recording, reproducing, and erasing the optical information, said semiconductor laser and said

light-receiving element are formed on a single (same) stem, and the light rays flux is transmitted through the laser beam in the order of a uniaxial crystal plate, a collimating lens, and a beam shaping element and guided to said objective lens.

25. A magneto-optic pickup apparatus as defined in claim 24, wherein the heights of said semiconductor laser and said light-receiving element formed on said stem are made different from each other.

26. A magneto-optic pickup apparatus, wherein said magneto-optic pickup apparatus focuses the light rays flux emitted from a semiconductor laser through an objective lens onto an optical information recording medium in order to form a small spot on said recording medium and performs the operations of recording, reproducing, and erasing the optical information, said semiconductor laser and said light-receiving element are formed on a single stem, and the light rays flux is guided to said objective lens throught a uniaxial crystal plate partly having a discontinuous surface.

27. A magneto-optic pickup apparatus as defined in claim 26, wherein said light-receiving element formed on said stem consists of two pieces of two-divisional light-receiving elements respectively having dividing directions different from each other, and the height of one of said light-receving elements is same as that of saidsemiconductor laser while the height of another one of said light-receiving elements is different from

that of said semiconductor laser.

28. A magneto-optic pickup apparatus as defined in either one of claims 24 and 26,

wherein a uniaxial crystal plate is hermetically sealed unitarily in a package containing said semiconductor laser and said light-receiving element therein.

29. A magneto-optic pickup apparatus, in which the outgoing light rays emitted from the semiconductor laser are focused by the objective lens and form an extremely small spot on the surface of the optical information recording medium, and in such manner, the operations of recording, reproducing, and/or erasing the information are performed, and further, the reflection light rays reflected on the afore-mentioned optical information recording medium are guided to the light-receiving element and thereby the reproduction of the information and the detection of the focus error signal and the track error signal both for use in the servo mechanism are performed,

wherein the reflection-type birefringent prism provided with the deflecting function of deflecting the reflection light rays reflected on the above optical information recording medium and the light rays flux separating function of separating the reflected light rays from the outgoing light rays is disposed in the optical path between the semiconductor laser constructing the optical pickup portion and the objective lens, and the light-receiving element for receiving the reflection light rays from

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the above optical information recording medium which are deflected and separated by the reflection-type birefringent prism is disposed on a single substrate together with the above-mentioned semiconductor laser.

30. A magneto-optic pickup apparatus, in which the outgoing light rays emitted from the semiconductor laser are focused by the objective lens and form an extremely small spot on the surface of the optical information recording medium, and in such manner, the operations of recording, reproducing, and/or erasing the information are performed, and further, the reflection light rays reflected on the afore-mentioned optical information recording medium are guided to the light-receiving element and thereby the reproduction of the information and the detection of the focus error signal and the track error signal both for use in the servo mechanism are performed,

wherein 3-beam Wollaston prism provided with the light rays flux separating function of separating the reflection light rays from the afore-mentioned optical information recording medium into three polarized components is disposed in the optical path between the semiconductor laser constructing the optical pickup portion and the objective lens,
and the above light-receiving element for receiving at least two polarized components among the polarized components separated by the 3-beam Wollaston prism is disposed on a single substrate together with the above-mentioned semiconductor laser.

31. A magneto-optic pickup apparatus as defined in either one of claims 29 and 30,

wherein all of the optical parts constructing the optical pickup portion from said semiconductor laser to said objective lens are mounted unitarily.

32. A magneto-optic pickup apparatus as defined in either one of claims 29, 30 and 31,

wherein the optical parts constructing the optical pickup portion from said semiconductor laser to said objective lens are accommodated in an actuator movable portion which can be moved both in the tracking direction and in the focusing direction.

33. In an optical pickup apparatus in which a semiconductor laser and a light-receiving element are formed on a same single substrate, light rays flux emitted from said semiconductor laser passes through a coupling lens employed as a collimating lens, a birefringent prism, a deflection prism, and a quarter-wave ($\lambda/4$) plate, and said light rays flux is focused by an objective lens in order to form an extremely small spot on an optical information recording medium, and

the operations of recording, reproducing, and/or erasing of the optical information are performed by said extremely small spot, the light rays flux reflected on said optical information recording medium is detected by said light-receiving element in order to detect the information.

34. An optical pickup apparatus as defined in claim 33, wherein said birefringent refraction prism consists of a uniaxial crystal.

35. An optical pickup apparatus as defined in claim 34, wherein said birefringent refraction prism is disposed between said semiconductor laser and said coupling lens.

36. An optical pickup apparatus as defined in claim 34, wherein said birefringent prism is disposed between said coupling lens and said deflection prism.

37. An optical pickup apparatus as defined in claim 34, wherein said birefringent prism and said deflection prism are unitarily combined into one serving as birefringent refractor and deflector at the same time.

38. An optical pickup apparatus as defined in claim 33, wherein outgoing light rays emitted from said semiconductor laser pass through an optical path, and the reflection light rays reflected on said optical information recording medium pass through same route as said optical path.

39. In a magento-optic pickup apparatus in which a semiconductor laser and a light-receiving element are formed on a same single substrate, light rays flux emitted from said semiconductor laser passes through a coupling lens employed as a collimating lens, a birefringent prism, and a deflection prism, and said light rays flux is focused by an objective lens in order to form an extremely small spot on an optical information

recording medium, and

the operations of recording, reproducing, and erasing of the optical information are performed by said extremely small spot, the light rays flux reflected on said optical information recording medium is detected by said light-receiving element in order to detect the information.

40. A magneto-optic pickup apparatus as defined in claim 39, wherein said birefringent refraction prism consists of a uni-axial crystal.

41. A magneto-optic pickup apparatus as defined in claim 40, wherein said birefringent prism is disposed between said semiconductor laser and said coupling lens.

42. A magneto-optic pickup apparatus as defined in claim 40, wherein said birefringent prism is disposed between said coupling lens and said deflection prism.

43. A magneto-optic pickup apparatus as defined in claim 40, wherein said birefringent prism and said deflection prism are unitarily combined into one serving as birefringent refractor and deflector at the same time.

44. A magneto-optic pickup apparatus as defined in claim 39, wherein outgoing light rays emitted from said semiconductor laser pass through an optical path, and the reflection light rays reflected on said optical information recording medium pass through same route as said optical path.

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